

Salsbury Cove Quadrangle, Maine

Bedrock geologic mapping by
Douglas N. Reusch*

Digital cartography by:
Craig F. Ruksznis
Susan S. Tolman

Robert G. Marvinney
State Geologist

Cartographic design and editing by:
Robert D. Tucker
Henry N. Berry IV

* Geology of Mount Desert Island taken from Gilman and Chapman, 1988.



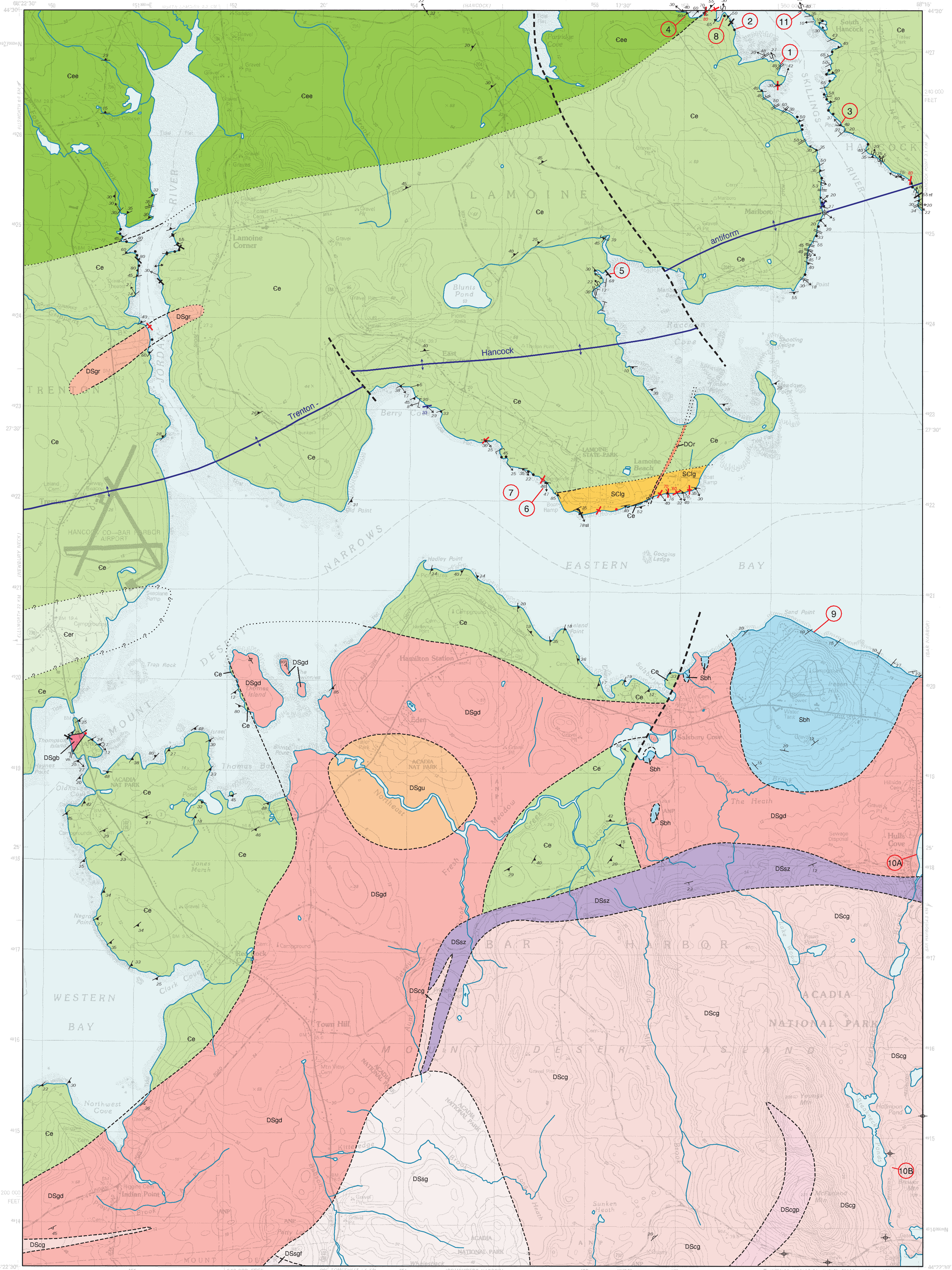
Maine Geological Survey

Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-2801 E-mail: mgs@maine.gov
Home page: <http://www.maine.gov/doc/nrmc/nrmc.htm>

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For additional information,
see Open-File Report 03-92.

Bedrock Geology



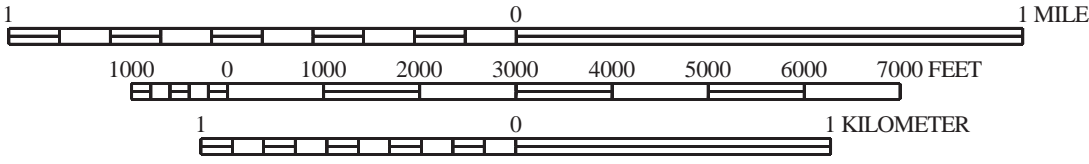
SOURCES OF INFORMATION

Geologic mapping north of Eastern Bay by D.N. Reusch in 2001 and 2002. Geology south of Eastern Bay from Gilman and Chapman (1988).



Quadrangle Location

SCALE 1 : 24,000



CONTOUR INTERVAL 6 METERS



Topographic base from U.S. Geological Survey Salsbury Cove quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impure responsibility for any present or potential effects on the natural resources.

INTRUSIVE ROCKS

Dikes of intrusive rock. Mainly dark gray diabase but also some light gray rocks of intermediate composition. Not metamorphosed. Typically less than a few meters thick, with fine-grained margins. Some dikes near Lamoine Beach are porphyritic, with plagioclase and pyroxene phenocrysts (Inclined, Orientation not specified).

Rhyolite. Mottled pale yellow-green to pink, massive to flow-laminated rhyolite exposed at Timber Point.

Granite. Medium-grained granite south of Crippens Brook. Not well exposed. Size and shape of body unknown.

Gabbro to diabase of Thompson Island. Interior of pluton is medium-grained (around 5 millimeter grain size).

Early Devonian-Late Silurian

Cadillac Mountain Intrusive Complex

Somesville Granite. Pink and gray, medium-grained to coarse-grained biotite granite containing pink or cream-colored alkali feldspar and light gray plagioclase. Hornblende is scarce to absent. Age of 424 ± 2 Ma reported by Seaman and others (1995) from U-Pb zircon analysis. Field relations clearly indicate that the Somesville Granite is younger than the Cadillac Mountain Granite (Wiebe, 1994).

Fine-grained granite. Variety of Somesville Granite.

Cadillac Mountain Granite. Pink to greenish-gray, coarse-grained granite. The individual grains of translucent, gray quartz and pink or gray feldspar are easily seen in outcrop. The principal black mineral is hornblende with minor biotite. Age of 419 ± 2 Ma reported by Seaman and others (1995) from U-Pb zircon analysis.

Porphyritic gabbro. Fine-grained granophyre with variable proportions of coarse quartz and feldspar crystals. The large equant quartz and feldspar crystals resemble individual grains in the Cadillac Mountain Granite. Interpreted by Chapman (1970) as a zone in which Cadillac Mountain Granite was largely recrystallized by late-stage hydrothermal alteration. Alternatively interpreted by Wiebe (1994) as disrupted silicic dike that intruded partially solidified granitic mush.

Unnamed granite. Pink, medium-grained granite with scattered larger grains of light lavender alkali feldspar. Not well exposed.

Gabbro-diorite. The gabbro is a dark gray, coarse-grained rock consisting of angular blocks of dark country rock in a light gray matrix of granite or hybrid igneous rock. The blocks include rock from the Bar Harbor Formation, Cranberry Island volcanics, and gabbro. Interpreted to be an intrusion breccia (Chapman, 1970).

Shatter zone. Zone of intensely shattered country rock surrounding the Cadillac Mountain Granite. Near the granite contact it consists of angular blocks of dark country rock in a light gray matrix of granite or hybrid igneous rock. The blocks include rock from the Bar Harbor Formation, Cranberry Island volcanics, and gabbro. Interpreted to be an intrusion breccia (Chapman, 1970).

Greenstone. Little-deformed, metamorphosed, massive dikes. Possible feeders for Castine Volcanics (Inclined, Vertical).

Silurian(?)–Middle Cambrian(?)

Lamoine Granite Gneiss. Light gray, white-weathering, medium-grained to fine-grained foliated and lineated granite exposed on the shore at Lamoine Beach. Foliation is defined by anastomosing planes of muscovite and chlorite. Fracture surfaces are commonly rusty.

STRATIFIED ROCKS

Silurian

Bar Harbor Formation. Typified by dark gray siltstone and sandstone in regular beds several centimeters thick. The beds weather to a tan, gray, or lavender color. East of Sand Point, the formation includes massive, light greenish-gray to bluish-gray flinty tuff. The Bar Harbor Formation is interpreted to rest unconformably on the Ellsworth Schist (Chapman, 1970).

Cambrian

Ellsworth Schist. Quartz-feldspar-muscovite-chlorite schist interstratified with lesser metamorphosed bimodal igneous rocks. The schist is typically dark green and light-weathering and consists of anastomosing, variably thick (1–20 mm), fine-grained, equigranular quartz and feldspar-rich laminations and muscovite-chlorite lenses and films. Most outcrops are generally massive, without discernable bedding, and compositions range from phyllosilicate-rich through quartz-rich. Medium-bedded quartz-feldspar sandstones and impure quartzites are rare. Ubiquitous sheets of metamorphosed igneous rocks, 10–200 cm in thickness, comprise greenstones (metamorphosed basalts) and metamorphosed rhyolites inferred to be pyroclastic deposits and rare flows rather than sills. Abundant greenstone sheets are typically fine-grained, massive, and contain sparse feldspars and patches of epidote. Rhyolites range from aphanitic to feldspar- and quartz-phyric, and contain pyrite cubes up to a few millimeters across.

Egypt Member. Dark green schist with feldspar porphyroblasts. Fine-grained biotite is reported in thin section (McGregor, 1964). The Egypt Member appears to overlie the Ellsworth Schist to its south, so it may be stratigraphically higher. Alternatively, if the concealed contact is a cryptic thrust fault, the Egypt Member may be allochthonous. A fault is suggested by a possible metamorphic discontinuity at the southern contact of the Egypt Member, since metamorphic biotite has been reported only from the Egypt Member. Additional study is needed to assess the metamorphic contrast and the validity of this fault hypothesis.

Rhyolite of Goose Cove. Inferred to underlie the western edge of the map, though not exposed in this quadrangle. Projected from the adjoining Newbury Neck quadrangle to the west (Reusch and Hogan, 2001).

EXPLANATION OF LINES

- Stratigraphic or intrusive contact (well-defined, approximately located, inferred, conjectural).
- High-angle fault contact.
- Axial trace of Trenton-Hancock antiform in bedding and foliation.

EXPLANATION OF SYMBOLS

- Outcrop
- Strike and dip of bedding in volcanic and sedimentary rocks (Horizontal, Inclined).
- Strike and dip of igneous sheet. Most are inferred to be pyroclastic deposits with some rare flows rather than sills (Inclined).
- Strike and dip of igneous compositional layering in gabbro-diorite (Inclined, Vertical).
- Strike and dip of enclaves or xenoliths in the Cadillac Mountain Granite (Horizontal, Inclined).
- Strike and dip of main metamorphic foliation, defined by preferred orientation of phyllosilicates and parallel alternating quartz/feldspathic and phyllosilicate laminations (Inclined, Vertical).
- Trend and plunge of mineral lineation, defined by elongate quartz, train of broken feldspar or pyrite, or phyllosilicate streaks (Horizontal, Plunging).
- Main generation folds (flexural flow folds of McGregor, 1964). Generally asymmetric, tight to isoclinal folds typically a few centimeters in wavelength.
- Hinge line, rotation sense unknown (Horizontal, Plunging).
- Hinge line, rotation sense indicated (Clockwise, Counterclockwise).
- Strike and dip of axial plane.
- Late generation folds (flexural slip folds of McGregor, 1964). Symmetric to asymmetric folds that deform the main foliation and lineation. Generally more open than main generation folds.
- Hinge line, rotation sense unknown (Horizontal, Plunging).
- Hinge line, rotation sense indicated (Clockwise, Neutral).
- Strike and dip of crenulation cleavage, spaced 1–3 mm (Inclined, Vertical).
- Strike and dip of kink band (Inclined).
- Strike and dip of quartz veins (Vertical).
- Strike and dip of minor fault, motion unspecified (Inclined, Vertical).
- Strike and dip of minor normal fault (Inclined).
- Trend and plunge of slickenside on fault surface (Plunging).
- Location of photograph in sidebar.

GEOLOGIC TIME SCALE

Geologic Age	Absolute Age*
Cenozoic Era	0–65
Mesozoic Era	Cretaceous Period 65–145 Jurassic Period 145–200 Triassic Period 200–253
Paleozoic Era	Permian Period 253–300 Carboniferous Period 300–360 Devonian Period 360–418 Silurian Period 418–443 Ordovician Period 443–489 Cambrian Period 489–544
Precambrian time	Older than 544

* In millions of years before present. (Okulitch, 2002)